

REMARKS / ARGUMENTS

For the convenience of the Examiner and clarity of purpose, Applicant has reprinted the substance of the Office Action in *10-point bolded and italicized font*. Applicant's arguments immediately follow in regular font.

1. *In view of the remarks, within the "Other Issues" at page 7 of the decision of February 26, 2007, by the Board of Patent Appeals and Interferences, prosecution on the merits has been reopened, so that the following obviousness rejections may be applied to the instant claims.*

3. *Claims 1, 5, 7, 9, 24, 25, and 27-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakubowski et al. ('027) in view of Friedel et al. ('410) or GB 1263439. Jakubowski et al. disclose aqueous polyurethane dispersions, having a solids content and particle size that meets applicants' claims, suitable for the production of films. Furthermore, patentees disclose that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. Patentees further disclose the use of 4,4'-MDI and polyol reactants for producing the prepolymer. See abstract, columns 3-5, and examples.*

4. *Though the primary reference discloses that the diisocyanate reactant is preferably 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P' or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67, within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in view of the fact that one of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been prima facie obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one*

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would have expected the less pure 4,4'-' isomer containing MDI to be less expensive and more readily obtainable.

5. *With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.*

Applicant respectfully traverses. In order for a claim to be obvious under 35 U.S.C. § 103(a), in accordance with MPEP § 706.02(j), there must be a suggestion, or motivation to combine reference teachings, b) a reasonable expectation of success, and c) the references must teach all of the claim limitations, *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Without acceding to any of the Examiner's characterizations of the cited references, Applicant contends that the Examiner has not identified any teaching or suggestion with U.S. Patent No. 5,959,027, U.S. Patent No. 4,118,410, or GB 1,263,439, alone or in combination, for combining the references in the manner as suggested by the Examiner.

First, Applicant has amended independent claims 1, 9 and 24 herein to more clearly recite the instant invention. In particular, Applicant has amended these claims to indicate that the active hydrogen containing material contains a high molecular weight diol, a low molecular weight diol, having the given molecular weight range for these materials. Applicant has also amended these claims, with this communication, to more clearly indicate that the diisocyanate used in preparing the polyurethane material of Applicant's invention is MDI having a P,P' isomer content ranging from 90 to 99 percent. Consequently, as these features are not described in any of the cited prior art references, reconsideration is respectfully considered.

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Additionally, Jakubowski (U.S. Patent No. 5,959,027, referred to by the Examiner herein as “the ‘027 patent”) describes a polyurethane/urea/thiourea latex prepared from a “high internal phase ration (HIPR)” emulsion and a chain-extending reagent. Jakubowski does not disclose use of an MDI wherein the P,P'-isomer content of the MDI is between 90 to 99 percent. In fact, Jakubowski describes only the use of 50:50 mixtures of 4,4'-diisocyanatodiphenylmethane and 2,4'-diisocyanatodiphenylmethane (see, column 5, lines 15-29; and, column 7, Example 1). The Examiner's rejection is premised on the recitation in Jakubowski that a suitable diisocyanate is 4,4'-diphenylmethane diisocyanate (column 3, lines 7-8), and that Jakubowski discloses aqueous polyurethane dispersions, having a solids content and particle size that meets Applicants' claims, suitable for the production of films. However, Jakubowski makes no reference, mention, or suggestion of the use of MDI with a 4,4'-isomer content between 90 and 99 percent. Additionally, Jakubowski is completely silent with regard to the use of active hydrogen containing materials wherein the material is a mixture of high molecular weight diols and low molecular weight diols. As this feature of Applicant's presently claimed invention is absent, reconsideration is requested.

The Examiner also suggests that the teachings of Friedel et al. (U.S. Patent No. 4,118,410, hereinafter “Friedel”) and GB 1,263,439 both disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. Without acceding to the Examiner's characterizations of either Friedel or GB 1,263,439, these cited references, alone or in combination with Jakubowski (differentiated above) do not teach or suggest all of the claim limitations of independent claims 1, 9 and 24 as amended herein, or

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claims dependent thereon. Friedel describes processes for the preparation of organic, higher-functional polyisocyanates and isomers of diphenylmethane diisocyanate using vacuum distillation at pressures between 10^{-3} and 10^{-1} mm/Hg under conditions that "avoid chemical change in the organic polyisocyanates contained in the mixture." GB 1,263,439 describes processes for the preparation of isocyanates, including processes for the production of 4,4'-diisocyanato diphenyl-methane in at least 98 wt. % purity using fractional distillation methods. Neither Friedel nor GB 1,263,439 describe or suggest polyurethane films, or processes for their production. Further, both Friedel and GB 1,263,439 are silent to polyurethane films or their production, wherein such production process includes the preparation of a non-ionic polyurethane prepolymer which is prepared from a diisocyanate and an active hydrogen-containing material that is a mixture of a high molecular weight diol and a low molecular weight diol, as described herein. Consequently, the combination of GB 1,263,439 and Friedel, alone or in combination, with the '027 patent to Jakubowski is inappropriate, and in any case would not teach or result in the polyurethane films prepared in accordance with the present invention.

In short, none of the cited references suggest combining the teachings. Furthermore, the three cited references do not teach all of the claim limitations for pending claims 1, 9, 24 and claims dependent thereon. Accordingly, Applicant requests that the rejections of claims 1, 5, 7, 9, 24, 25 and 27-41 under 35 U.S.C. § 103(a) be withdrawn.

6. Claims 1, 5, 7, 9, 24, 25, and 27-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41552 in view of Friedel et al. ('410) or GB 1263439. WO 98/41 552 discloses aqueous polyurethane dispersions, having a solids content and particle size that meets applicants' claims, suitable for the production of films. Furthermore the reference discloses that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene

sulfonate. The reference further discloses the use of 4,4'-MDI and polyol reactants for producing the prepolymer. See abstract, pages 2-6, and examples.

7. *Though the primary reference discloses that the diisocyanate reactant is preferably 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P' or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67, within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in view of the fact that one of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been prima facie obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one would have expected the less pure 4,4'- isomer containing MDI to be less expensive and more readily obtainable.*

8. *With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.*

Applicant respectfully traverses. In order for a claim to be obvious under 35 U.S.C. § 103(a), as recited before, there must be a suggestion, or motivation to combine reference teachings, b) a reasonable expectation of success, and c) the references must teach all of the claim limitations.

WO 98/41552 to Jakubowski suffers from the same deficiencies as U.S. Patent No. 5,959,027 (the '027 Patent) cited above, and discussed in detail supra. In fact, WO 98/41552

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is merely a published PCT equivalent of Jakubowski. Applicant directs the Examiner's attention to the international filing date of WO 98/41552—March 17, 1998—which is equivalent to the U.S. filing date of the '027 Patent to Jakubowski. Further, Applicant wishes to point out that both WO 98/41552 and the '027 Patent to Jakubowski claim priority to U.S. provisional patent application serial no. 60/039,194, filed March 17, 1997. Consequently, the same reasoning Applicant has put forth regarding Examiner rejections 3-5 above may be applied here, as none of the cited references, alone or in combination, teach or suggest the presently claimed invention.

For these reasons, as well as the reasons cited above, the rejection of claims 1, 5, 7, 9, 24, 25 and 27-41 under 35 U.S.C. 103(a) over WO 98/41552 in view of Friedel et al ('410) or GB 1,263,439 is believed to be moot. Reconsideration is respectfully requested.

9. *Claims 1, 5, 7, 9, 11, 24, 25, and 27-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41554 in view of Friedel et al. ('410) or GB 1263439. WO 98/41554 discloses aqueous polyurethane dispersions, having a solids content and particle size that meets applicants' claims, suitable for the production of films. Furthermore, the reference discloses that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. The reference further discloses the use of 4,4'-MDI and polyol reactants for producing the prepolymer. See abstract, pages 4-12, and examples; especially page 10, lines 4, 5, and 10.*

10. *Though the primary reference discloses that the diisocyanate reactant is preferably 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P' or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67,*

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within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in view of the fact that one of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been prima facie obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one would have expected the less pure 4,4'- isomer containing MDI to be less expensive and more readily obtainable.

11. With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.

Applicant respectfully traverses these rejections as well, at least because of the reasons set out regarding Examiner rejections 6-8 above, and because WO 98/41552 suffers from the same deficiencies as Jakubowski, discussed supra, in particular with regard to the fact that WO 98/41552 is merely a published PCT equivalent of Jakubowski.

The only difference between these rejections and those of Examiner rejections 6-8, discussed supra, is that these rejections include the rejection of claim 11. Pending claim 11 depends from independent claim 9, amended herein. Consequently, in addition to the reasons set out previously for why the presently-presented claims are allowable, claim 11 is believed to be allowable by depending on an allowable independent claim.

Reconsideration is respectfully requested.

12. Claims 8, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41552 or WO 98/41554, each in view of Friedel et al. ('410) or GB 1263439, and further in view of Alsaffar ('602). As aforementioned, WO 98/41552 and WO 98/41554 disclose aqueous

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polyurethane dispersions, having a solids content and particle size that meets applicants' claims, suitable for the production of films. Furthermore, the references disclose that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. Though the primary references fail to specifically recite the use of applicants' specifically claimed diisocyanate, the position is taken that the use of the specifically claimed diisocyanate would have been obvious in view of the teachings of the secondary references. See paragraphs 7 and 10 above.

13. With respect to claims 8, 11, and 12, though the primary references disclose the application of the dispersions to substrates and disclose the production of films, the primary references fail to specifically recite the use of the aqueous dispersions to produce items, such as gloves and condoms. However, the use of aqueous dispersions to produce such items was known at the time of invention. This position is supported by the teachings of Alsaffar at column 2, lines 18+. Therefore, it would have been obvious to use the aqueous dispersions of the primary references to produce the items recited within the claims.

Applicant respectfully traverses this rejection of claims 8, 11 and 12. As detailed above, Applicant contends that neither WO 98/41552, alone or in combination with Friedel et al. ('410) or GB 1263439, disclose or teach the polyurethane films prepared in accordance with currently pending and amended independent claims 1 and 9, upon which rejected claims 8, 11 and 12 depend. As stated above, and in accordance with MPEP § 706.02(j), for a claim to be obvious, there must be a suggestion, or motivation to combine reference teachings, b) a reasonable expectation of success, and c) the references must teach all of the claim limitations, *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). The Examiner has not identified any teaching or suggestion with WO 98/41552 or WO 98/41554 for combining the references in the manner suggested by the Examiner.

Additionally, the independent claims, upon which claims 8, 11 and 12 depend, have been distinguished above regarding WO 98/41552, alone and in combination with GB 1263439 and/or Friedel et al. ('410). Consequently, these claims are believed to be allowable by depending on

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allowable independent claims.

With regard to WO 98/41554, this published patent application describes only stable aqueous polyurethane latexes prepared from prepolymer formulations including a polyisocyanate component and polyol component, wherein from 5 to 40 percent of the weight of the polyol component is ethylene oxide in the form of ethylene oxide applied as an end cap onto a propylene oxide or higher oxyalkylene polyoxyalkylene polyol, and no more than 45 percent of the weight of polyol component is ethylene oxide. The same reasoning as used above with regard to WO 98/41552 can be applied to the WO 98/41554 document as well, as it, too, is silent with regard to the MDI P,P'-isomer content and the use of active hydrogen containing materials wherein the material is a mixture of high molecular weight diols and low molecular weight diols, as recited in the currently amended claims. As these features of Applicant's presently claimed invention are absent, reconsideration is requested, for the same reasons as applied to the combination of WO 98/41552 with Friedel and GB 1263439.

None of the cited references suggest combining their teachings. Further, the cited references do not teach all of the claim limitations for pending claims 8, 11 and 12, which are dependent upon independent claims 1 and 9, detailed and distinguished previously. Accordingly, Applicant requests that the rejections of claims 8, 11 and 12 under 35 U.S.C. § 103(a) be withdrawn.

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CONCLUSION

Of the pending claims in this application, claims 1, 9, 24, 40 and 41 have been amended. Claims 31, 35 and 38 have been cancelled, while claims 2-4, 6, 10, 13-23 and 26 were previously cancelled. With this response, claims 1, 5, 7-9, 11, 12, 24, 25 and 27-30, 32-34, 36, 37, and 39-41 remain pending in this application. Applicant respectfully submits that each claim is patentable, as detailed herein. A notice of allowance is respectfully requested.

Claims 1, 9 and 24 have been amended in order to more clearly indicate that the active hydrogen containing material of the polyurethane film composition comprises a high molecular weight diol, a low molecular weight diol, and further to provide the molecular weight ranges applicable for each of these materials. Support for these amendments to claims 1, 9 and 24 can be found in the originally-filed claims and specification, for example but not limited to, on page 5. Claims 1, 9 and 24 have also been amended herein to more clearly recite that the diisocyanate useful in the present compositions is MDI, having a P,P'-isomer content from 90 to 99 percent. Support for these amendments to the claims regarding the P,P'-isomer content can be found on page 5, lines 4-6, as well as in the examples, in particular examples 1, 2, 4 and 5. Claims 40 and 41 have been amended to correct antecedent basis, in light of claim cancellations made herein. Applicant contends that none of these amendments constitute the addition of new matter.

Applicant does not believe that any additional fees are due at this time. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to this document, the Commissioner is authorized to deduct the requisite fees to make this and related papers timely and effective to Locke Liddell & Sapp LLP Deposit Account No. 12-1322, referencing matter


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number 019131-02700.

Applicant thanks the Examiner for his consideration and effort on this matter and submits that this application is now in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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